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Product Name: 631 SiS620 Baby AT
Manual Revision: 1.0
Release Date: 25 May, 1999

FCC & DOC COMPLIANCE

Federal Communications Commission Statement
This device complies with FCC Rules Part 15.

This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Re-orient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

WARNING! The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communication Statement
This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

1. INTRODUCTION

How this Manual is organized

This manual is divided into the following sections:

1. Introduction: Manual information and checklist
2. Features: Information and specifications concerning this product
3. Installation: Instructions on setting up the motherboard
4. BIOS Software: Instructions on setting up the BIOS software

Item Checklist

Please check that your package is complete. If you discover damaged or missing items, please contact your retailer.

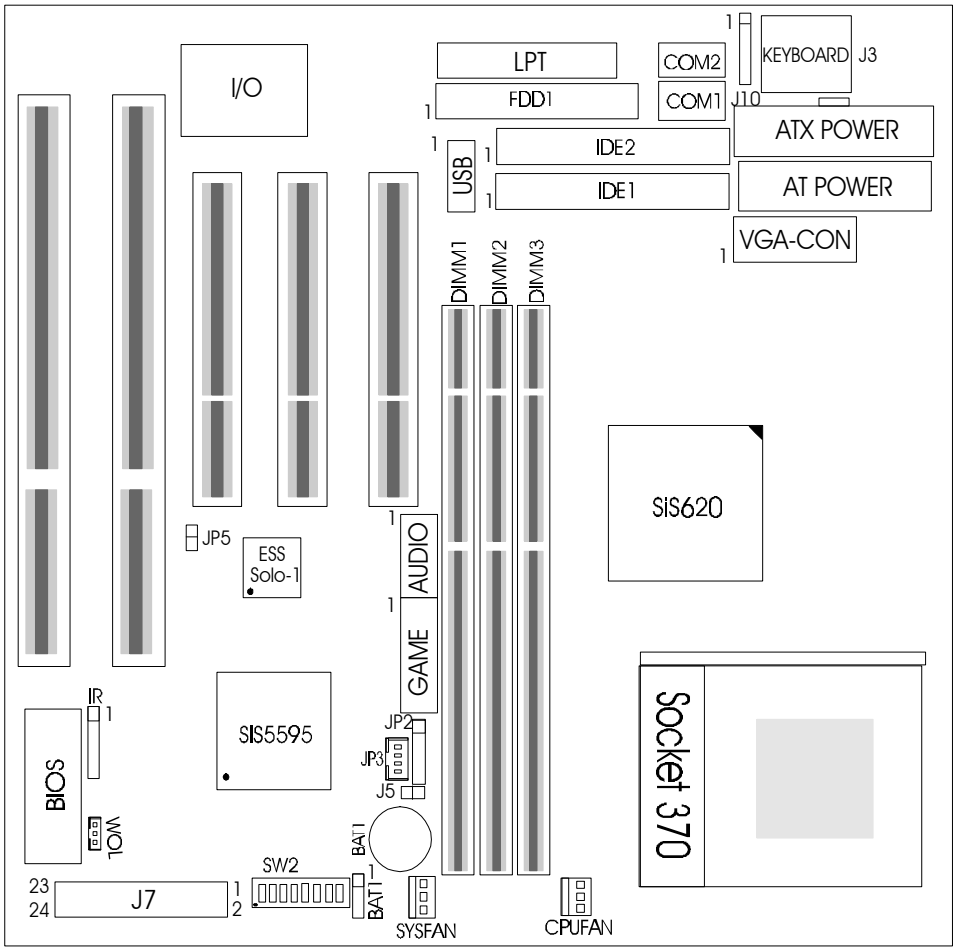
- ✓ (1) 631 SiS620 Motherboard
- ✓ (1) IDE ribbon cables for master and slave drives
- ✓ (1) Floppy ribbon cable for (1) 5.25 inch floppy and (2) 3.5 inch floppies
- ✓ (1) USB, IR Cables
- ✓ (1) COMs Cable
- ✓ (1) LPT and PS/2 Cable
- ✓ (1) Game/Audio Cables
- ✓ (1) VGA Cable
- ✓ (1) Diskette or CD with support drivers and utilities:
  - Flash Memory Writer utility to update the onboard programmable BIOS
  - Desktop Management Interface (DMI) utility
  - Readme files for description and User Manual
- ✓ (1) User's Manual/Quick Manual

2. FEATURES

Features of the 631 SiS620 Motherboard
The 631 SiS620 motherboard is carefully designed for the demanding PC user who wants advanced features processed by the fastest CPU.

- **Multi-Speed** : Supports Socket 370 Processor.
- **SiS620** : Features SiS620 + SiS5595 chipsets which supports Front Side Bus Frequency 66/100 MHz.
- **Enhanced ACPI and Anti-Boot Virus BIOS** : Features a programmable BIOS, offering enhanced ACPI for Windows 98 compatibility, built-in hardware-based virus protection through Trend ChipAway Virus, and auto detection of most devices for virtually automatic setup.
- **PC/100 Memory Support** : Equipped with three DIMM sockets to support PC100 SDRAMs (16, 64 128, or 256MB) up to 1.5GB.
- **Internal Accelerated Graphics Port (AGP) Controller** : Supports AGP v2.0 compliant for 1x and 2x transfer mode.
- **Onboard ESS Solo-1 PCI Sound Chip**
- **SMBus** : Features the System Management Bus interface, which is used to physically transport commands and information between SMBus devices.
- **ISA & PCI Expansion Slots** : Provides one ISA slot, one shared 16-bit ISA/32-bit PCI slot and three 32-bit PCI slots.
- **Intelligence System Monitoring** : Fan Status Monitoring and Alarm, Temperature Monitoring and Alert, Voltage Monitoring and Alert, System Resources Alert.
- **Super Multi-I/O** : Provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. One dedicated IR port supports Infrared-IrDA (HPSIR) & ASK (Amplitude Shift Keyed) IR.
- **Desktop Management Interface (DMI)** : Support DMI through BIOS, which allows hardware to communicate within a standard protocol creating a higher level of compatibility. (Requires DMI-enabled components.)
- **Ultra DMA/33/66 Bus Master IDE** : Comes with an onboard PCI Bus Master IDE controller with two connectors that support four IDE devices in two channels, supports UltraDMA/33/66, PIO Modes 0/1/2/3/4, and supports Enhanced IDE devices, such as Tape Backup and CD-ROM drives. Two floppy drives of either 5.25 or 3.5 inch (1.44MB or 2.88MB) are also supported without an external card. Supports Japanese standard “Floppy 3 mode” (3.5-inch disk drive: 1.2MB) and LS-120 floppy disk drives (3.5-inch disk drive: 120MB, 1.44MB, 720KB). BIOS supports IDE CD-ROM.
- **IrDA**: Supports an optional infrared port module for wireless interface.
- **Concurrent PCI**: Allows multiple PCI transfers from PCI master buses to memory to CPU.

Layout of the 631 SiS620 Baby AT Motherboard



3. INSTALLATION

Jumpers

1) BAT1 p. 5 Clear Real Time Clock (RTC) RAM (Short/Clear) CMOS

Expansion Slots/Sockets

1) DIMM 1/2/3 p. 8 DIMM Memory Module Support
2) ISA1-ISA2 p. 10 16-bit ISA Bus Expansion Slots
3) PCI1, PCI2, PCI3 p. 10 32-bit PCI Bus Expansion Slots

Connectors

1) J3 p. 11 AT Keyboard Connector (6-pin female)
2) J10 p. 11 PS/2 Mouse Connector (5-pin header)
3) LPT p. 11 Parallel (Printer) Port Connector (13x2-pin header)
4) COM1 p. 11 Serial Port COM1(5x2-pin header)
5) COM2 p. 11 Serial Port COM2 (5x2-pin header)
6) FDD p. 11 Floppy Drive Connector (34-pin header)
7) USB p. 11 Universal Serial Bus Ports 1 & 2 (two 5-pin headers)
8) IDE1/2 p. 11 Primary/Secondary IDE Connector (20x2-pin headers)
9) CPUFAN/SYSFAN p. 12 CPU Fan Power Lead (3-pin headers)
10) IR p. 12 Infrared Port Module Connector (5-pin header)
11) WOL p. 12 Wake-On-LAN Connector (3-pin header)
12) PW2, ATX Power Supply p. 12 ATX Motherboard Power Connector (10x2-pin connector)
13) PW1, AT Power Supply p. 12 Baby AT Motherboard Power Connector (12-pin connector)
14) HD-LED (J7, PIN 19-21) p. 12 IDE LED Activity Light (2-pin header)
15) SMI (J7, PIN 16-18) p. 12 SMI Switch Lead (2-pin header)
16) PW-ON (J7, PIN 22-24) p. 12 ATX Power & Soft-Off Switch Lead (2-pin header)
17) RESET (J7, PIN 9-11) p. 12 Reset Switch Lead (2-pin header)
18) KB-LOCK (J7, PIN 2-10) p. 12 Keyboard Lock Switch Lead (2-pins header)
19) TB-LED (J7, PIN 13-15) p. 12 Turbo LED (2-pin header)
20) TB-SW (J7, PIN 12-14) p. 12 Turbo SW (2-pin header)
21) SPEAKER (J7, PIN 1-9) p. 12 Speaker (4-pin header)
22) VGA-CON p. 12 VGA Cable Connector (8x2-pin header)
23) AUDIO p. 12 Audio Cable Connector (5x2-pin header)
24) GAME/MIDI p. 12 Game/MIDI Cable Connector (8x2-pin header)

DIP Switches

1) U13 (PIN 9-16) p. 6 CPU External Frequency Selection (4 ways)
2) U13 (PIN 1-8) p. 6 CPU Frequency Multiplier Selection (4 ways)

Installation Steps

Before using your computer, you must complete the following steps:

1. Set Jumpers
2. Install Memory Modules
3. Install the Central Processing Unit (CPU)
4. Install Expansion Cards
5. Connect Ribbon Cables, Cabinet Wires, and Power Supply
6. Setup the BIOS Software

3. INSTALLATION

I. Jumpers & Dip Switches

Several hardware settings are made through the use of jumper caps to connect jumper pins on the motherboard. See motherboard layout on Page 3 for locations of jumpers. The jumper settings will be described numerically such as [--], [1-2], [2-3] for no connection, connect pins 1&2, and connect pins 2&3 respectively. Pin 1 of jumper is enclosed with "□". For manufacturing simplicity, the jumpers may be sharing pins from other groups. Use the diagrams in this manual instead of following the pin layout on the board. To connect the pins, simply place a plastic jumper cap over the two pins as diagramed.

WARNING! Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not to touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded anti-static pad or on the bad that came with the component whenever the components are separated from the system.

Jumper Settings

1. **Clear Real Time Clock (BAT1)**
   The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1) Turn off your computer and unplug your AC power, (2) Short BAT1 pin 1 & 2 for 1 or 2 seconds, (3) Short BAT1 pin 2 & 3 to restore normal, (3) Turn on your computer, (4) Hold down <delete> during bootup and enter BIOS setup to re-enter user preferences.

2. **CPU External Frequency (U13, PIN 9-10)**
   This allows the selection of the CPU's *External* frequency (or *BUS Clock*). The BUS Clock multiplied by the BUS Ratio equals the CPU's *Internal* Frequency (the advertised CPU speed).

3. **CPU Core: BUS Frequency Multiplier (U13, PIN 11-16)**
   This option sets the frequency ratio between the *Internal* frequency of the CPU and CPU's *External* frequency. These must be set in conjunction with the *CPU Bus Frequency.*

   WARNING! Frequencies exceed the specifications for the onboard Chipset and CPU are not guaranteed to be stable.

3. INSTALLATION

Set the headers of U13, PIN 9-16 to select the External Frequency of CPU as follows:

CP	PCI	9-10	11-12	13-14	15-16
66.8	33.3	On	On	On	Off
75	30	Off	On	On	Off
83.3	33.3	On	Off	On	Off
95	31.7	Off	Off	On	Off
100	33.3	On	On	On	Off

Set the pins 1-2, 3-4, 5-6, 7-8 of U13 to select the Frequency Multiplier of the processor as follows:

Core/Bus	1-2	3-4	5-6	7-8
2	Off	Off	Off	Off
3	On	On	On	Off
4	On	On	Off	On
5	On	On	Off	Off
6	Off	On	On	On
7	Off	On	On	Off
8	Off	On	Off	On
1.5	Off	Off	Off	On
2.5	On	Off	On	On
3.5	On	Off	On	Off
4.5	On	Off	Off	On
5.5	On	Off	Off	Off
6.5	Off	Off	On	On
7.5	Off	Off	On	Off

WARNING! Be sure that sufficient air is circulation across the processor's passive heatsink because the processor could overheat, which could damage both the processor and the motherboard. You may install an auxiliary fan, if necessary.

II. System Memory (DIMM)

This motherboard uses only Dual Inline Memory Modules (DIMMs). Three sockets are available for **3.3 Volt** (power level) Unbuffered Synchronous Dynamic Random Access Memory (SDRAM) of either 16, 64, 128 or 256MB to form a memory size between 8MB to 1.5GB. One side (with memory chips) of the DIMM takes up one row on the motherboard.

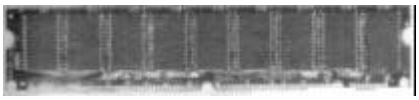
Memory speed setup is recommended through *SDRAM Configuration* under "Chipset Features Setup".

IMPORTANT (see **General DIMM** Notes below)

- **SDRAMs used must be compatible with the current Intel PC/100 SDRAM specification**.

Install memory in any combination as follows:

DIMM Location	**168-pin DIMM**		**Total Memory**
DIMM1 (Rows 0&1)	SDRAM 16, 64, 128, 256MB	X1	
DIMM2 (Rows 2&3)	SDRAM 16, 64, 128, 256MB	X1	
DIMM3 (Rows 4&5)	SDRAM 16, 64, 128, 256MB	X1	
	Total System Memory (Max 1.5GMB)	=	



SDRAM with ECC

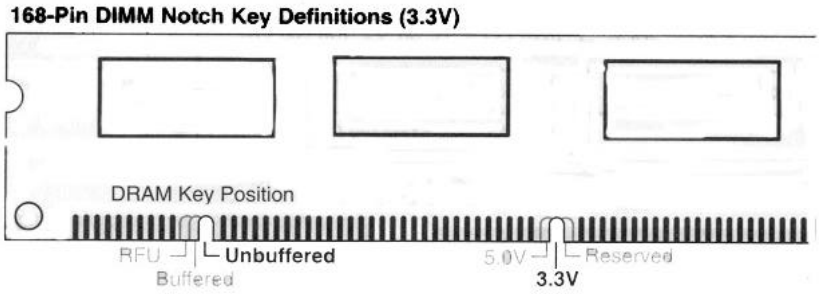
SDRAM without ECC

General DIMM Notes

- Use only PC/100-compliant DIMMs when the motherboard operates at 100MHz, thus most systems will not even boot if non-compliant modules are used because of the strict timing issues involved under this speed.
- Two possible memory chips are supported: SDRAM with or without ECC.
- SDRAM chips are generally thinner with higher pin density than EDO (Extended Data Output) chips.
- BIOS shows SDRAM memory on bootup screen.
- 8 chips/side modules do not support ECC, only 9 chips/side modules support ECC.
- Single-sided modules are usually 16, 64 or 128MB; double sided are usually 64, 128 or 256MB.

168-Pin DIMM Memory Sockets

The DIMMs must be 3.3 Volt Unbuffered SDRAMs. To determine the DIMM type, check the notches on the DIMMs (see figure below).



The notched on the DIMM will shift between left, center, or right to identify the type and also to prevent the wrong type from being inserted into the DIMM slot on the motherboard. You must tell your retailer the correct DIMM type before purchasing. This motherboard supports four clock signals.

III. Expansion Cards

WARNING! Unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

First read your expansion card documentation for hardware and software settings that may be required to set up your specific card.

Expansion Card Installation Procedure

1. Read the documentation for your expansion card.
2. Set any necessary jumpers on your expansion card.
3. Remove your computer system's cover
4. Remove the bracket on the slot you intend to use. Keep the bracket for possible future use.
5. Carefully align the card's connectors and press firmly.
6. Secure the card on the slot with the screw you removed in step 4.
7. Replace the computer system's cover.
8. Set up the BIOS if necessary such as *IRQ xx Used by ISA: Yes* in PNP AND PCI SETUP).
9. Install the necessary software drivers for your expansion card.

Assigning IRQs for Expansion Cards

Some expansion cards need to use an IRQ to operate. Generally an IRQ must be exclusively assigned to one use. In a standard design there are 16 IRQs available but most of them are already in use, leaving 6 IRQs free for expansion cards.

Both ISA and PCI expansion cards may require the use of IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards. The original ISA expansion card design, now referred to as legacy ISA cards, requires that you configure the card's jumpers manually and then install it in any available slot on the ISA bus. You may use Microsoft Diagnostics (MSD.EXE) utility located in the Windows directory to see a map of your used and free IRQs. If you use Windows 95, the **Resources** tab under **Device Manager** displays the resource settings being used by a particular device to gain access, double-click the **System** icon under the **Control Panel** program). Ensure that no two devices share the same IRQ or your computer will experience problems when those two devices are in use at the same time.

To simplify this process, this motherboard complies with the Plug and Play (PnP specification, which was developed to allow automatic system configuration whenever a PnP-compliant card is added to the system. For PnP cards, IRQs are assigned automatically from those available.

If the system has both legacy and PnP ISA cards installed, IRQs assigned to PnP cards from those not used by legacy cards. The PCI and PNP configuration section of the BIOS setup utility can be used to assign which IRQs are being used by legacy cards. For older legacy cards that do not work with the BIOS, you may contact your vendor for a ISA Configuration Utility.

An IRQ number is automatically assigned to PCI expansion cards after those used by legacy and PnPISA cards. In the PCI bus design, the BIOS automatically assigns an IRQ to a PCI slot that contains a card requiring and IRQ. To install a PCI card, you need to set the INT (interrupt assignment). Since all the PCI slots on this motherboard use an INTA#, set the jumpers on your PCI cards to INT A.

Assigning DMA Channels for ISA Cards
Some ISA cards, both legacy and PnP, may also need to use a DMA (Direct Memory Access channel). DMA assignments for this motherboard are handled the same way as the IRQ assignment process described earlier. You can select a DMA channel in the PCI and PnP configuration section of the BIOS Setup utility.

IMPORTANT: To avoid conflicts, reserve the necessary IRQs and DMAs for legacy ISA cards (under PNP AND PCI SETUP of the BIOS SOFTWARE, choose *Yes in IRQ xx Used by ISA* and *DMA x Used by ISA* for those IRQs and DMAs you want to reserve.

IV. External Connectors

WARNING! Some pins are used for connectors or power sources. These are clearly distinguished from jumpers in the motherboard layout. Placing jumper caps over these connectors will cause damage to your motherboard.

IMPORTANT: Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. The four corners of the connectors are labeled on the motherboard. Pin 1 is the side closest to the power connector on hard drives and floppy drives. IDE ribbon cable must be less than 46cm (18in), with the second drive connector no more than 15cm (6in) from the first connector.

1. **Keyboard Connector (J3)**
   This connector is for a standard AT keyboard.

2. **PS/2 Mouse Connector (5-pin, J10)**
   This system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, expansion cards can use IRQ12. See "PS/2 Mouse Control" in BIOS Features Setup of the BIOS SOFTWARE.

3. **Parallel Port Connector (25-pin, LPT)**
   You can enable the parallel part and choose the IRQ through "Onboard Parallel Port" in Chipset Features Setup of the BIOS SOFTWARE. **Note**: Serial printers must be connected to the serial port.

4. **Serial Port COM1 and COM2 Connectors (10-pin, COM1/COM2)**
   The two serial ports can be used for pointing devices or other serial devices. See "Onboard Serial Port" in Chipset Features Setup of the BIOS SOFTWARE.

5. **Floppy Disk Drive Connector (34 pin, FDD)**
   This connector supports the provided floppy disk drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives.

6. **Universal Serial BUS Ports 1 & 2 (10-pin, USB)**
   Two USB ports are available for connecting USB devices.

7. **Primary/Secondary IDE Connectors (Two 40-pin IDE)**
   These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Refer to the documentation of your hard disk for the jumper settings. BIOS now supports SCSI device or IDE CD-ROM bootup (see "HDD Sequence SCSI/IDE First" & "Boot Sequence" in the **BIOS Features Setup** of the BIOS SOFTWARE)

TIPS: You may configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector. You may install one operating system on an IDE drive and another on a SCSI drive and select the boot disk through BIOS Features Setup.

8. Chassis/ CPU Fan Power Supply Connectors (3-pin, SYSFAN & CPUFAN)
These connectors support cooling fans of 500mA (6W) or less. Orient the fans so that the heat sink fins allow airflow to go across the onboard heat sink(s) instead of the expansion slots. Depending on the fan manufacturer, the wiring and plug may be different. The red wire should be positive, while the black should be grounded. Connect the fan's plug to the board taking into consideration the polarity of the connector.

WARNING! The CPU and/or motherboard will overheat if there is no airflow across the CPU and onboard heatsinks. Damage may occur to the motherboard and/or the CPU fan if these pins CPU fan if these pins are incorrectly used. **These are not jumpers, do not place jumper caps over these pins.**

9. IrDA-Compliant Infrared Module Connector (5-pin, IR)
This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through "UART2 Use Infrared" in Chipset Features Setup to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.

10. Wake-On-LAN Connector (3-pin, WOL)
This connector supports the feature of Wake-On-LAN from the LAN card.

11. AT Power Supply Connector (12-pin, PW1)
This connector connects to an AT power supply.

12. ATX Power Supply Connector (20-pin, PW2)
This connector connects to an ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly but gently making sure that the pins are aligned.

IMPORTANT: Make sure that your ATX power supply can supply at least 10mAmp on the 5-volt standby lead (5VSB). You may experience difficulty in powering on your system if your power supply cannot support the load.

13. IDE Device Activity LED (2-pin, HDLED)
This connector supplies power to the cabinet's IDE device activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

14. SMI Suspend Switch Lead (J7 pin 16-18, SMI)
This allows the user to manually place the system into a suspend mode or "Green" mode where system activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure below) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the "Turbo Switch" since it does not have a function. SMI is activated when it detects a *short to open* moment and therefore leaving it shorted will not cause any problems. This may require one or two pushed depending on the position of the switch.

15. **ATX Power Switch/ Soft Power Switch Lead(J7 pin 22-24, PW-ON)**
    The system power is controlled by a momentary switch connected to this lead. When the setting of PWR Button in CMOS Power Management is set to 4 sec delay, pushing the button once will switch the system between ON and SLEEP. Pushing the switch while in the ON mode for more than 4 seconds will turn the system off. The system power LED shows the status of the system's power.

16. **Reset Switch Lead (J7 pin 9-11, RST)**
    This 2-pin connection connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting to prolong the life of the system's power supply.

17. **Keyboard Lock Switch Lead (J7 pin 2-10, KBLOCK)**
    This 2-pin connector connects to the case-mounted key switch to allow keyboard locking.

18. **Audio : Line-out/Mic-in/Line-in (Audio)**
    SiS620 motherboard builds in onboard audio controller interface. The interface is hardware compatible with AC97 and SoundBlaster Pro for Windows DOS box and real-mode DOS legacy. This feature can be set up in CMOS setting.

19. **Game/Midi (Game)**
    SiS620 motherboard builds in onboard game/MIDI controller interface.

V. Audio, Game/MIDI Installation

Connect the Audio Cable, which connects to the stereo phone jacks, to the Onboard Audio header & make sure the orientation is correct. Otherwise, the audio features will be malfunctioned.

Connect the Game/MIDI Cable, which connects to the female DB-15 connector. Make sure the orientation of the connection is correct.

VI. Power up the system

1. After all connections are made, close the system case cover.

2. Be sure that all switches are off (in some systems, marked with O).

3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.

4. Make DIMM1 is installed with Memory for shared VGA memory.

5. Connect the power cored into a power outlet that is equipped with a surge protector.

6. During power-on, hold down <Delete> to enter BIOS setup. Follow the instructions in the next section, BIOS SOFTWARE.

❖ **Powering Off your computer**: You must first exit or shut down your operating system before switching off the power switch. For ATX power supplies, you can press the ATX power switch after exiting or shutting down your operating system. If you use Windows 95, click the **Start** button, click **Shut Down**, and then click **Shut down the computer**?. The system will give three quick beeps after about 30 seconds and then power off after Windows shuts down.

I. Flash Memory Writer Utility

This motherboard has an boot virus protection and therefore, requires a 2Mbit flash ROM.

AWDFLASH.EXE: This is the Flash Memory Writer utility that updates the BIOS by uploading a new BIOS file to the 2Mbit programmable flash ROM chip on the motherboard. This file works only in DOS mode.

NOTE: The following screen displays are provided as examples only and may not reflect the screen contents displayed on your system.

IMPORTANT! If "unknown" is displayed after **Flash Memory**:, the memory chip is either not programmable or is not supported by the ACPI BIOS and therefore, cannot be programmed by the Flash Memory Writer utility.

Main Menu

1. **Save Current BIOS To File**
   This option allows you to save a copy of the original motherboard BIOS in case you need to reinstall it. It is recommended that you save **AWDFLASH.EXE** and the BIOS file to a bootable floppy disk.

   To save your current BIOS, type [1] at the **Main Menu** and then press <Enter>. The **Save Current BIOS To File** screen appears. Type a filename and the path, for example, **A:\UMVP4** and then press <Enter>.

2. **Update BIOS Including Boot Block and ESCD**
   This option updates the boot block, the baseboard BIOS, and the ACPI extended system configuration data (ESCD) parameter block from a new BIOS file. See the next page for procedures on downloading an updated BIOS file.

   To update your current BIOS, type [2] at the **Main Menu** and the press <Enter>. The **Update BIOS Including Boot Block And ESCD** screen appears. Type the filename of your new BIOS and the path, for example, **A:\SIS62001.BIN**, and then press <Enter>.

   When prompted to confirm the BIOS update, press **Y** to start the update.

   The utility starts to program the new BIOS information into the flash ROM. When the programming is finished, *Flashed Successfully* will be displayed.

Managing and Updating Your Motherboard's BIOS

Upon First use of the Computer System

1. Create a bootable system floppy disk by typing [FORMAT A:/S] from the DOS prompt without creating "AUTOEXEC.BAT" and "CONFIG.SYS" files.
2. Copy AFLASH.EXE to the just created boot disk.
3. Run AFLASH.EXE from this new disk and select **option 1. Save Current BIOS to File**. See **1. Save Current BIOS to File** on the previous page for more details and the rest of the steps.

WARNING! If you encounter problems while updating the new BIOS, DO NOT turn off your system since this might prevent your system from booting up. Just repeat the process, and if the problem still persists, update the original BIOS file you saved to disk above. If the Flash Memory Writer utility was not able to successfully update a complete BIOS file, your system may not be able to boot up. If this happens, your system will need service.

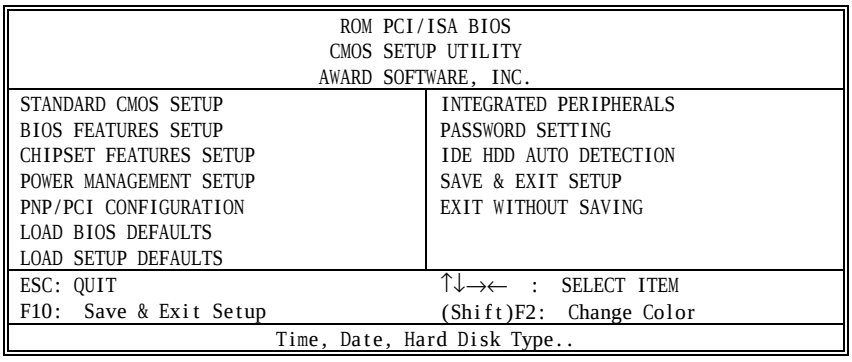
II. BIOS Setup

All computer motherboards provide a Setup utility program for specifying the system configuration and settings. If your motherboard came in a computer system, the proper configuration entries may have already been made. If so, invoke the Setup utility, as described later, and take note of the configuration settings for future reference; in particular, the hard disk specifications.

If you are installing the motherboard, reconfiguring your system or you receive a Run Setup message, you will need to enter setup information. This section describes how to configure your system using this utility.

The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the system provides you with the opportunity to run this program. This appears during the Power-On Self Test (POST). Press <Delete> to call up the Setup utility. If you are a little bit late pressing the mentioned key(s), POST will continue with its test routines, thus preventing you from calling up Setup. If you still need to call Setup, reset the system by pressing <Ctrl> + <Alt> + <Delete>, or by pressing the Reset button on the system case. You can also restart by turning the system off and then back on again. But do so only if the first two methods fail.

When you invoke Setup, the CMOS SETUP UTILITY main program screen will appear with the following options:



1. Load BIOS Defaults & Load Setup Defaults

The "**Load BIOS Defaults**" option loads the minimum settings for troubleshooting. **"Load Setup Defaults",** on the other hand, is for loading optimized defaults for regular use. Choosing defaults at this level, will modify all applicable setting.

A section at the bottom of the above screen displays the control keys for this screen. Take note of these keys and their respective uses. Another section just below the control keys section displays information on the currently highlighted item in the list.

2. Standard CMOS Setup

This "Standard CMOS Setup" option allows you to record some basic system hardware configuration and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. However, it the configuration stored in the CMOS memory on the board gets lost or damaged, or it you change your system hardware configuration, you will need to respecify the configuration values. The configuration values usually get lost or corrupted when the power of the onboard CMOS battery weakens.

```
                    ROM PCI/ISA BIOS
                 STANDARD CMOS SETUP
                AWARD SOFTWARE, INC.

Date (mm:dd:yy)  : Wed, May 8 1996
Time (hh:mm:ss) : 15:38:55

HARD DISKS        TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE
Primary Master:   Auto  0     0     0     0        0      0       AUTO
Primary Slave:    Auto  0     0     0     0        0      0       AUTO
Secondary Master: Auto  0     0     0     0        0      0       AUTO
Secondary Slave:  Auto  0     0     0     0        0      0       AUTO

Drive A  : 1.44M, 3.5 in.          Base Memory:          640K
Drive B  : None                    Extended memory:      1536K
                                   Other Memory:         384K
Video    : EGA/VGA
Halt On  : All Errors              Total Memory:         16384K

ESC: Quit          ↑↓→←: Select Item          PU/PD/+/- : Modify
F1 : Help          (Shift)F2:Change Color
```

The preceding screen provides you with a list of options. At the bottom of this screen are the control keys for this screen. Take note of these keys and their respective uses.

User-configurable fields appear in a different color. If you need information on the selected field, press <F1>. The help menu will then appear to provide you with the information you need. The memory display at the lower right-hand side of the screen is read-only and automatically adjusts accordingly.

Details of Standard CMOS Setup:

Date

To set the date, highlight the "Date" field and then press either <Page Up>/<Page Down> or <+>/<-> to set the current date. Follow the month, day and year format. Valid values for month, day and year are: Month: (1 to 12), Day: (1 to 31), Year: (up to 2079)

Time
To set the time, highlight the "Time" field and then press either <Page Up>/<Page Down> or <+>/<-> to set the current time. Follow the hour, minute and second format. Valid values for hours, minute and second are : (Hour: (00 to 23), Minute: (00 to 59), Second: (00 to 59). Press <Enter> twice if you do not want to modify the current time.

NOTE: You can bypass the date and time prompts by creating an AUTOEXEC.BAT file. For information on how to create this file, please refer to the MS-DOS manual.

Hard Disks
This field records the specifications for all non-SCSI hard disk drives installed in your system. The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first of which is the "master" and the second is the "slave".

For IDE hard disk drive setup, you can:
- Use the *Auto* setting for detection during bootup.
- Use the IDE HDD AUTO DETECTION in the main menu to automatically enter the drive specifications.
- Enter the specifications yourself manually by using the "User" option.

The entries for specifying the hard disk type include **CYLS** (number of cylinders), **HEAD** (number of read/write heads), PRECOMP (write precompensation), **SECTOR** (number of sectors) and **MODE**. The **SIZE** field automatically adjusts according to the configuration you specify. The documentation that comes with your hard disk should provide you with the information regarding the drive specifications.

The **MODE** entry is for IDE hard disks only, and can be ignored for MFM and ESDI drives. This entry provides three options: *Normal, Large, LBA, or AUTO* (see below). Set **MODE** to the *Normal* for IDE hard disk drives smaller than 528MB; set it to *LBA* for drives over 528MB that support Logical Block Addressing (LBA) to allow larger IDE hard disks; set it to *Large* for drives over 528MB that do not support LBA. *Large* type of drive can only be used with MS-DOS and is very uncommon. Most IDE drives over 528MB support the *LBA mode.*

Auto detection of hard disks on bootup
For each field: Primary Master, Primary Slave, Secondary Master, and Secondary Slave, you can select Auto under the TYPE and MODE fields. This will enable auto detection of your IDE hard disk during bootup. This will allow you to change your hard disks (with the power off) and then power on without having to reconfigure your hard disk type. If you use older hard disks that do not support this feature, then you must configure the hard disk in the standard method as described earlier by the "User" option.

NOTE: After the IDE hard disk drive information has been entered into BIOS, new IDE hard disk drives must be partitioned (such as with FDISK) and then formatted before data can be read from and write on. Primary IDE hard disk drives must have its partition set to active (also possible with FDISK).

NOTE: SETUP Defaults are noted in parenthesis next to each function heading.

Drive A/ Drive B (None)
These fields record the types of floppy disk drives installed in your system. The available options for drives A and B are: 360KB, 5.25 in.; 1.2MB, 5.25 in.; 720KB, 3.5 in.; 1.44MB, 3.5 in.; 2.88MB, 3.5 in.; None.

To enter the configuration value for a particular drive, highlight its corresponding field and then select the drive type using the left-or right-arrow keys.

Floppy 3 Mode Support (Disabled)
This is the Japanese standard floppy drive. The standard stores 1.2MB in a 3.5 inch diskette. This is normally disabled but you may choose from either: *Drive A, Drive B, Both, and Disable.*

Video (EGA/VGA)
Set this field to the type of video display card installed in your system. The options are *EGA/VGA, CGA 49, CGA 80, AND Mono* (for Hercules or MDA).

If you are using a VGA or any higher resolution card, choose EGA/VGA.

Halt On (All Errors)
This field determines which types of errors will cause the system to halt. Choose from *All Errors; No Errors; All, But Keyboard, All, But Diskette;* and *All, But Disk/Key*.

3. BIOS Features Setup

This "BIOS Features Setup" option consists of configuration entries that allow you to improve your system performance, or let you set up some system features according to your preference. Some entries are required by the motherboard's design to remain in their default settings.

ROM PCI/ISA BIOS
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	:	Disabled	Video BIOS Shadow	:	Enabled
CPU Internal Cache	:	Enabled	C8000 – CBFFF Shadow	:	Disabled
External Cache	:	Enabled	CC000 – CFFFF Shadow	:	Disabled
CPU L2 Cache ECC Checking	:	Enabled	D0000 – D3FFF Shadow	:	Disabled
Processor Number Feature	:	Enabled	D4000 – D7FFF Shadow	:	Disabled
Quick Power On Self Test	:	Enabled	D8000 – DBFFF Shadow	:	Disabled
Boot Sequence	:	A, C,SCSI	DC000 – DFFFF Shadow	:	Disabled
Swap Floppy Drive	:	Disabled			
Boot Up Floppy Seek	:	Enabled			
Boot Up NumLock Status	:	On			
Memory Parity Check	:	Disabled			
Typematic Rate Setting	:	Disabled			
Typematic Rate (Chars/Sec)	:	6			
Typematic Delay (Msec)	:	250			
Security Option	:	Setup	ESC : Quit ↑↓→← : Select Item		
PCI/VGA Palette Snoop	:	Disabled	F1 : Help PU/PD/+/- : Modify		
OS Select For DRAM >64MB	:	Non-OS2	F5 : Old Values (Shift) F2 : Color		
Report No FDD For WIN95	:	Yes	F7 : Load Setup Defaults		

A section at the lower right of the screen displays the control keys you can use. Take note of these keys and their respective uses. If you need information on a particular entry, highlight it and then press <F1>. A pop-up help menu will appear to provide you with the information you need. <F5> loads the last set values, <F6> and <F7> loads the BIOS default values and Setup default values, respectively.

NOTE: SETUP Defaults are noted in parenthesis next to each function heading.

Virus Warning (Disabled)
This field allows you to set boot virus detection, ensuring a virus-free boot sector. This new anti-virus solution is unlike native BIOS tools, which offer limited virus protection typically by write-protecting the partition table. With this new solution, your computer is protected against boot virus threats earlier in the boot cycle, that is, before they have a chance to load into your system. This ensures your computer boots to a clean operating system. The system halts and displays a warning message when it detects a virus. If this occurs, you can either allow the operation to continue or use a virus-free bootable floppy disk to restart and investigate your system. Because of conflicts with new operating systems, for example, during installation of new software, you may have to set this to *Disabled* to prevent write errors.

CPU Internal Cache/External Cache (Enabled)
These fields allow you to choose from the default of Enables or choose Disable to turn on or off the CPU' s Internal cache.

Quick Power On Self Test (Enabled)
This field speed up the Power-On Self Test (POST) routine by skipping retesting a second, third, and forth time. Setup default setting for this field is Enabled. A complete test of the system is done on each test.

Boot Sequence (A,C)
This field determines where the system looks first for an operation system. Options are *A,C; A,CDROM,C; CDROM,C,A; D,A; E,A; F,A; C only; LS/ZIP,C; and C,A.* The setup default setting is to check first the floppy disk and then the hard disk drive, that is, A, C.

Swap Floppy Drive (Disabled)
This field determines the assignment of 1st and 2nd Floppy Drive.

Boot Up Floppy Seek (Enabled)
When enabled, the BIOS will seek drive A once.

Boot Up NumLock Status (On)
This field enables users to activate the Number Lock function upon system boot.

Memory Parity (Enabled)
This field determines the Memory Parity check and Error Check and Correct features.

Typematic Rate Setting (Disabled)
When enabled, you can set the two-typematic control listed next. Setup default setting is Disabled.

Typematic Rate (Chars/Sec) (6)
This field controls the speed at which the system registers repeated keystrokes. Options range from 6 to 30 characters per second. Setup default setting is 6; other settings are 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec) (250)
This field sets the time interval for displaying the first and second characters. Four delay rate options are available: 250, 500, 750, and 1000.

Security Option (System)
When you specify a *Supervisor Password* and /*or User Password* (explained later in this section), the Security Option field determines when the system prompts for the password. The default setting is **System**, where the system prompts for the User Password every time you start your system. The other option is

Setup, where the system goes through its startup routine unless the Setup utility is called, when the system prompts for the Supervisor Password.

PCI/VGA Palette Snoop (Disables)
Some display cards that are nonstandard VGA such as graphics accelerators or MPEG Video Cards may not show colors properly. The setting *Enabled* should correct this problem. Otherwise leave this on the setup default setting of *Disabled.*

OS/2 Select for DRAM > 64M (Disabled)
When using OS/2 operating systems with installed DRAM of greater than 64MB, you need to set this option to *Enabled* otherwise leave this on *Disabled.*

Video ROM BIOS Shadow (Enabled)
This field allows you to change the video BIOS location from ROM to RAM. Relocating to RAM enhances system performance, as information access is faster than the ROM.

C8000-CBFFF to DC000-DFFFF (Disabled)
These fields are used for shadowing other expansion card ROMs. If you install other expansion card with ROMs on them, you will need to know which addresses the ROMs use to shadow them specifically. Shadowing a ROM reduces the memory available between 640K and 1024K by the amount used for this purpose.

4. Chipset Features Setup

This "Chipset Features Setup" option controls the configuration of the board's chipset. Control keys for this screen are the same as for the previous screen.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
CHIPSET FEATURES SETUP

Auto Configuration	: Enabled	Auto Detect DIMM/PCI Clk	: Enabled
RAS Pulse Width Refresh	: 4T	Spread Spectrum	: Disabled
RAS Precharge Time	: 2T	CPU Host/SDRAM Clock	: Default
RAS to CAS Delay	: 2T		
ISA Bus Clock Frequency	: 7.159MHz		
Starting Point of Paging	: 1T		
SDRAM CAS Latency	: 2T		
SDRAM WR Retire Rate	: X-2-2-2		
CPU to PCI Burst Mem. WR	: Disabled		
System BIOS Cacheable	: Enabled		
Video RAM Cacheable	: Enabled		
Memory Hole At 15M-16M	: Disabled		
AGP Aperture Size	: 8M		
Concurrent function(MEM)	: Enabled		
CPU Pipeline Control	: Enabled	ESC : Quit	↑↓→← : Select Item
PCI Delay Transaction	: Disabled	F1 : Help	PU/PD/+/- : Modify
SDRAM Synchronous Mode	: Enabled	F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	

NOTE: SETUP Defaults are noted in parenthesis next to each function heading.

RAS Pulse Width refresh (4T)
This field sets the number of CPU clock cycles allotted for the RAS pulse refresh, according to DRAM specifications.

RAS Precharge Time (2T)
This field sets the number of cycles it takes the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.

RAS to CAS Delay (2T)
This controls the timing of the transition from RAS(row address strobe) to CAS(column address strobe).

ISA Bus Clock Frequency (7.159MHz)
This controls the frequency of the ISA Bus.

Starting Point of Paging (1T)
This field controls the start timing of memory paging operations.

SDRAM CAS Latency (2T)
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value.

SDRAM WR Retire Rate (X-2-2-2)
This sets the timing for data transfer from the write buffer to memory.

CPU to PCI Burst Mem. WR (Enabled)
Select "Enabled" permits PCI burst memory write cycles, for faster performance. When disabled, performance is slightly slower, but more reliable.

System BIOS Cacheable (Enabled)
Select "Enabled" allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program rites to this memory area, a system error may result.

Video BUOS Cacheable (Enabled)
Select "Enabled" allows caching of the system BIOS ROM at C0000h-F7FFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Memory Hole at 15M-16M (Disabled)
This reserve the system memory area 15M-16M for ISA adapter ROM.

Concurrent Function (MEM) (Enabled)
When enabled, CPU access memory cycles and PCI masters access memory cycles can be concurrently issued onto host bus and PCI bus, respectively, and then the memory access cycles will be rearranged by SIS620 to memory sequentially. When disabled, either CPU or PCI masters starts memory access cycle will block the other one's cycle until the current cycle is finished.

Concurrent Function (PCI) (Enabled)
When this bit is enabled, CPU accesses CI bus cycle and PCI masters access memory cycles can be concurrently issued onto host bus and PCI bus, respectively. By doing this, these cycles will be forwarded to PCI bus and memory bus at the same time. When disabled, either one of these two kinds of cycles will block the other until the current cycle is finished.

CPU Pipeline Control (Enabled)
These fields controls the CPU pipeline control.

5. Power Management Setup

This "Power Management Setup" option allows you to reduce power consumption. This feature turns off the video display and shuts down the hard disk after a period of inactivity.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
POWER MANAGEMENT SETUP

ACPI function	:	Enabled	VGA Activity	: Disabled
Power Management	:	User Define	IRQ3 [3-7, 9-15],NMI	: Disabled
PM Control by APM	:	No	IRQ8 Break Suspend	: Disabled
Video off Option	:	Always on	Power Button Over Ride	: Instant Off
Video off Method	:	Blank Screen	Ring Power Up Control	: Disabled
Switch Function	:	Disabled	GPIO5 Power Up Control	: Disabled
Doze Speed (div by)	:	8/8	KB Power ON Password	: Enter
Stdby Speed (div by)	:	8/8	Power UP by Alarm	: Disabled
MODEM Use IRQ	:	NA		
Hot Key Function As	:	Disabled		
** PM Timers **				
HDD Off After	:	Disabled		
Doze Mode	:	Disabled		
Standby Mode	:	Disabled		
Suspend Mode	:	Disabled		
** PM Events **				
HDD Ports Activity	:	Disabled	ESC : Quit ↑↓→← : Select Item	
COM Ports Activity	:	Disabled	F1 : Help PU/PD/+/- : Modify	
LPT Ports Activity	:	Disabled	F5 : Old Values (Shift) F2 : Color	
			F7 : Load Setup Defaults	

NOTE: SETUP Defaults are noted in parenthesis next to each function heading.

Details of Power Management Setup

ACPI function (Enabled)
This field enables the ACPI function.

Power Management (User Define)
This field acts as the master control for the power management modes. *Max Saving* puts the system into power saving mode after a brief period of system inactivity; *Min Saving* is almost the same as *Max Saving* except that this time the system inactivity period is longer; *Disable* disables the power saving features; *User Define* allows you to set power saving options according to your preference.

PM Control by APM (Yes)
When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.

IMPORTANT: Advanced Power Management (APM) should be installed to keep the system time updated when the computer enters suspend mode activated by the BIOS Power Management. For DOS environments, you need to add the statement, DEVICE=C:\DOS\POWER.EXE, in you CONFIG.SYS. For Windows 3.x and Windows 95, you need to install Windows with the APM feature. A battery and power cord icon labeled "Power" will appear in the "Control Panel". Choose "Advanced" in the Power Management Field.

Video Off Option (Suspend -> Off)
This field determines when to activate the video off feature for monitor power management. The settings are *Suspend -> Off* and *Always On*.

Video Off Method (DPMS OFF)
This field defines the video off features. The following options are available*: DPMS OFF, DPMS Reduce ON, Blank Screen, V/H SYNC+ Blank, DPMS Standby, and DPMS Suspend*. The DPMS (Display Power Management System) features allow the BIOS to control the video display card if it supports the DPMS feature. Blank Screen only blanks the screen (use this for monitors without power management of "green" features. If set up in your system, your screen saver will not display with *Blank Screen* selected). V/H SYNC + *Blank b*lanks the screen and turns off vertical and horizontal scanning.

Switch Function (Disabled)
This field enables the system to enter complete Suspend mode. Suspend mode offers greater power savings, with a correspondingly longer awakening period.

Doze Speed (div by)
Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8.

Stdby Speed (div by)
Select a divisor to reduce the CPU speed during Standby mode to a fraction of the full CPU speed. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8-0.

MODEM Use IRQ
This field sets IRQ to the modem (if any) on the system. Activity of the selected IRQ always awakens the system.

Hot Key Power Off (Disabled)
Select "Enabled" if the system has a hot key for soft power off.

PM Timers
This section controls the time-out settings for the Power Management scheme. The fields included in this section are "HDD Power Down", which places the hard disk into its lowest power consumption mode, and the Doze, Standby and Suspend system inactivation modes.

The system automatically "wakes up" from any power saving mode when there is system activity such as when a key is pressed from the keyboard, or when there is activity detected form the enabled IRQ channels.

Doze Mode (Disabled)
When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

HDD Power Down (Disabled)
Shuts down any IDE hard disk drives in the system after a period of inactivity. This time period is user-configurable to 1 –15 Min or Disable.

Suspend Mode (Disabled)
Sets the period of time after which each of these modes activates: 30 sec, 1 Min, 2 Min, 4 Min, 8 Min, 20 Min, 30 Min, 40 Min, 1 Hour, and Disable.

PM Events
The system activity monitoring of some common I/O events may be disabled and their interrupt requests, so they do not wake up the system. The default wake-up event is keyboard activity.
When On (or named, in the case of LPT & COM), any activity from one of the listed system peripheral devices or IRQs wakes up the system.

HDD Ports Activity (Disabled)
When set to On, any event occurring at a HDD or floppy drive port will awaken a system which has been powered down.

COM Ports Activity (Disabled)
When set to On, any event occurring at a COM (serial) port will awaken a system which has been powered down.

LPT Ports Activity (Disabled)
When set to On, any event occurring at a LPT (printer) port will awaken a system which has been powered down.

VGA Activity (Disabled)
When set to On, any event occurring at VGA will awaken a system which has been powered down.

IRQ [3-7,9-15], NMI (Disabled)
When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

IRQ 8 Break Suspend (Disabled)
This field controls the monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Power Button Over Ride (Soft-Off)
When set to *Soft Off*, the ATX switch can be used as a normal system power-off button when pressed for less than 4 seconds. *Suspend* allows the button to have a dual function where pressing less than 4 seconds will place the system in sleep mode. Regardless of the setting, holding the ATX switch for more then 4 seconds will power off the system.

Ring Power Up Control (Enabled)
This allows either settings of Enabled or Disabled for powering up the computer (turns the ATX power supply on) when the modem receives a call while the computer is Soft Off. NOTE: The computer cannot receive or transmit data until the computer and applications are fully running, thus connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off causes an initialization string that will also cause the system to power on.

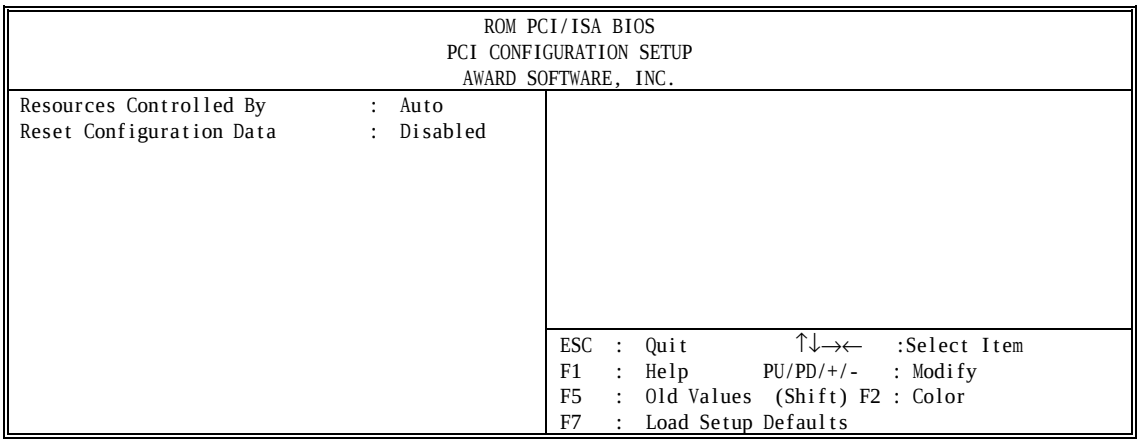
GPIO5 Power Up Control (Disabled)
This field enables a signal from General Purpose Input 05 returns the system to Full On state.

KB Power On Password
When a password is set for keyboard, this password can return the system to Full On state.

Power Up by Alarm (Disabled)
When this field enabled, the system can be returned to Full On state by the alarms.

6. PNP and PCI Setup

This 'PNP and PCI Setup" option configures the PCI bus slots. All PCI bus slots on the system use INTA#, thus all installed PCI cards must be set to this value.


ROM PCI/ISA BIOS
PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.
Resources Controlled By : Auto
Reset Configuration Data : Disabled
ESC : Quit ↑↓→← :Select Item
F1 : Help PU/PD/+/- : Modify
F5 : Old Values (Shift) F2 : Color
F7 : Load Setup Defaults

NOTE: SETUP Defaults are noted in parenthesis next to each function heading.

Resource Controlled by (Auto)
The BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capacity means absolutely nothing unless you are using a Plug and Play operating system such as Windows95.

Reset Configuration Data (Disabled)
Select "Enabled" to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

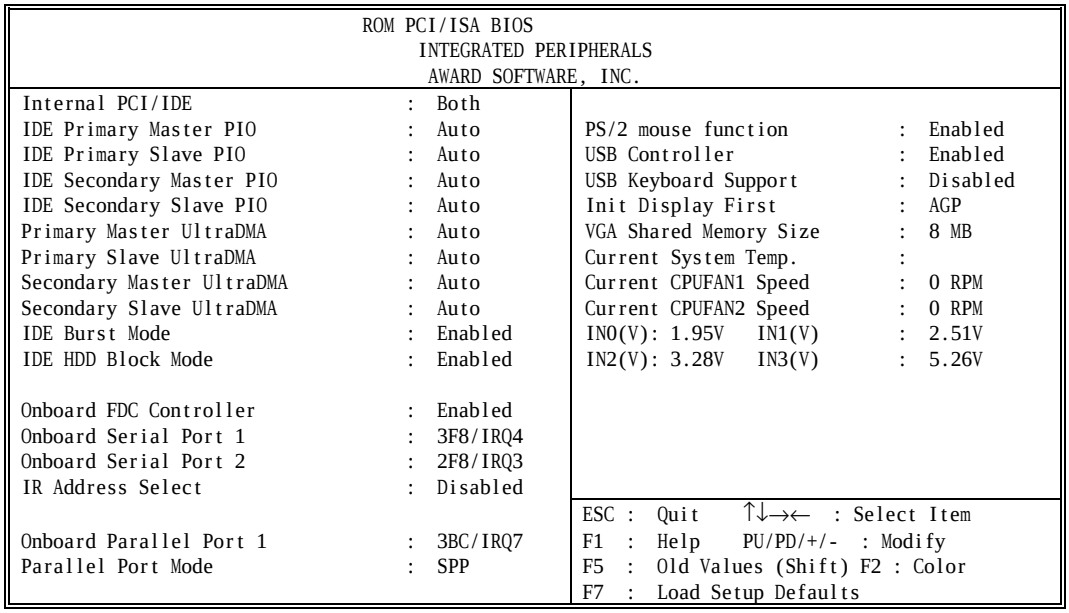
IRQ3/4/5/7/9/10/11/12/14/15
When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specifications, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA0/1/3/5/6/7
When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specifications, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

7. Integrated Peripherals


ROM PCI/ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.
Internal PCI/IDE : Both
IDE Primary Master PIO : Auto
IDE Primary Slave PIO : Auto
IDE Secondary Master PIO : Auto
IDE Secondary Slave PIO : Auto
Primary Master UltraDMA : Auto
Primary Slave UltraDMA : Auto
Secondary Master UltraDMA : Auto
Secondary Slave UltraDMA : Auto
IDE Burst Mode : Enabled
IDE HDD Block Mode : Enabled
Onboard FDC Controller : Enabled
Onboard Serial Port 1 : 3F8/IRQ4
Onboard Serial Port 2 : 2F8/IRQ3
IR Address Select : Disabled
Onboard Parallel Port 1 : 3BC/IRQ7
Parallel Port Mode : SPP
PS/2 mouse function : Enabled
USB Controller : Enabled
USB Keyboard Support : Disabled
Init Display First : AGP
VGA Shared Memory Size : 8 MB
Current System Temp. :
Current CPUFAN1 Speed : 0 RPM
Current CPUFAN2 Speed : 0 RPM
IN0(V): 1.95V IN1(V) : 2.51V
IN2(V): 3.28V IN3(V) : 5.26V
ESC : Quit ↑↓→← : Select Item
F1 : Help PU/PD/+/- : Modify
F5 : Old Values (Shift) F2 : Color
F7 : Load Setup Defaults

Internal PCI/IDE (Both)
This chipset contains an internal PCI IDE interface with support for two IDE channels.

IDE Primary Master/Slave PIO (Auto)/IDE Secondary Master/Slave PIO (Auto)
Each channel (0 and 1) has both a master and a slave making four IDE devices possible. Because each IDE device may have a different Mode timing (0, 1, 2, 3, 4), it is necessary for these to be independent. The default setting of Auto will allow auto detection to ensure optimal performance.

IDE Primary Master/Slave UDMA (Enabled)/IDE Secondary Master/Slave UDMA (Enabled)
This field auto detects Ultra DMA capability (for improved transfer speeds and data integrity) for compatible IDE devices. Set to *Disable* to suppress Ultra DMA capability.

IDE Burst Mode (Enabled)
Selecting "Enabled" reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If disk drive error appears, try setting this value to "Disabled".

IDE HDD Block Mode (Enabled)
The chipset contains a PCI IDE interface with support for two IDE channels. Select "Enabled" to activate the primary and/or secondary IDE interface. Select "Disabled" to deactivate this interface, if you install a primary and/or secondary add-in IDE interface IDE interface.

Onboard FDC Controller (Enabled)
When *Enabled*, this field allows you to connect your floppy disk drives to the onboard floppy disk drive connector instead of a separate controller card. If you want to use a different controller card to connect the floppy disk drives, set this field to Disabled.

Onboard Serial Port 1/Port 2 (3F8H/IRQ4, 2F8H/IRQ3)
Settings are 3F8H/IRQ4, 2F8H/IRQ3, 3E8H/IRQ4, 2E8H/IRQ10, Auto and Disabled for the onboard serial connector.

IR Address Select (Disabled)
Select IR Address.

IR Mode (ASKIR)
Select IR Mode.

IR IRQ Select (IRQ11)
Select IRQ for IR.

Onboard Parallel Port (378H/IRQ7)
This field sets the address of the onboard parallel port connector. You can select either: 3BCH/IRQ7, 378H/IRQ7, 278H/IRQ5, Disabled. If you install an I/O card with a parallel port, ensure that there is no conflict in the address assignments. The PC can support up to three parallel ports as long as there are no conflicts for each port.

Parallel Port Mode (Normal)
This field allows you to set the operation mode of the parallel port. The setting *Normal*, allows normal-speed operation but in one direction only; *EPP* allows bi-directional parallel port operation at maximum speed; *ECP* allows the parallel port to operate in bi-directional mode and at a speed faster than the maximum data transfer rate; *ECP+EPP* allows normal speed operation in a two-way mode.

PS/2 mouse function (Enabled)

USB Controller (Enabled)

Init Display First (AGP)

VGA Shared Memory Size (8M)

Current CPUFAN1/2 Speed
These fields display the current speed of up to two CPU fans.

IN0~3
These fields display the current voltage of up to seven voltage input lines.

8. Supervisor Password and User Password

These two options set the system passwords. "Supervisor Password" sets a password that will be used to protect the system and the Setup utility; "User Password" sets a password that will be used exclusively on the system. By default, the system comes without any passwords. To specify a password, highlight the type you want and then press <Enter>. A password prompt appears on the screen. Taking note that the password is case sensitive, and can be up to 8 alphanumeric characters long, type in your password and then press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically reverts to the main screen.

```
ENTER PASSWORD:
```

```
CONFIRM PASSWORD:
```

To implement password protection, specify in the "Security Option" field of the BIOS Features Setup screen when the system will prompt for the password. If you want to disable either password, press <Enter> instead of entering a new password when the "Enter Password" prompts appears. A message confirms the password has been disabled.

NOTE: If you forget the password, see CMOS RAM in section III for procedures on clearing the CMOS.

9. IDE HDD AUTO Detection

This "IDE HDD Auto Detection" option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.

```
                                ROM PCI/ISA BIOS
                                STANDARD CMOS SETUP
                                AWARD SOFTWARE, INC.

 HARD DISKS    TYPE    SIZE    CYLS    HEAD    PRECOMP    LANDZ    SECTOR    MODE
Primary Master  :

        Select Primary Master Option (N=Skip):  N
         OPTIONS     SIZE    CYLS     HEAD     PRECOMP     LANDZ     SECTOR     MODE
           2(Y)      540     524       32         0         1047       63        LBA
             1       540     1048      16       65535       1047       63       NORMAL
             3       540     524       32       65535       1047       63       LARGE
Note:  Some OSes (like SCO-UNIX) must use "NORMAL" for installation
```

Up to four IDE drives can be detected, with parameters for each listed inside the box. To accept the optimal entries, press <Y> or else select from the numbers displayed under the OPTIONS field (2, 1, 3 in this case); to skip to the next drive, press <N>. If you accept the values, the parameters will appear listed

beside the drive letter on the screen. The process then proceeds to the next drive letter. Pressing <N> to skip rather than to accept a set of parameters causes the program to enter zeros after that drive letter.

Remember that if you are using another IDE controller that does not feature Enhanced IDE support for four devices, you can only install two IDE hard disk drives. You IDE controller must support the Enhanced IDE features in order to use Drive E and Drive F. The onboard PCI IDE controller supports Enhanced IDE, with two connectors for connecting up to four IDE devices. If you want to use another controller that supports four drives, you must disable the onboard IDE controller in the Chipset Features Setup screen.

When auto-detection is completed, the program automatically enters all entries you accepted on the field for that drive in the Standard CMOS Setup screen. Skipped entries are ignored and are not entered in the screen.

When auto-detection is completed, the program automatically enters all entries you accepted on the field for that drive in the Standard CMOS Setup screen. Skipped entries are ignored and are not entered in the screen.

If you are auto detecting a hard disk that supports the LBA mode, three lines will appear in the parameter box. Choose the line that lists LBA for an LBA drive. Do not select Large or Normal.

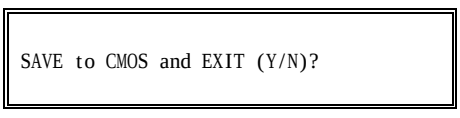
The auto-detection feature can only detect one set of parameters for a particular IDE hard drive. Some IDE drives can use more than one set. This is not a problem if the drive is new and empty.

IMPORTANT: If your hard disk was already formatted on an older previous system, incorrect parameters may be detected. You will need to enter the correct parameters manually or use low-level format if you do not need the data stored on the hard disk.

If the parameters listed differ from the ones used when the disk was formatted, the disk will not be readable. If the auto -detected parameters do not match the ones that should be used for your disk, do not accept them. Press <N> to reject the presented settings and enter the correct ones manually from the Standard CMOS Setup screen.

10. Save & Exit Setup

Select this option to save into the CMOS memory all modifications you specified during the current session. To save the configuration changes, highlight the "Save & Exit Setup" option on the main screen, type "Y", and then press <Enter>.



11. Exit Without Saving

Select this option to exit the Setup utility without saving the modifications you specify during the current session. To exit without saving, highlight the "Exit Without Saving" option on the main screen and then press <Enter>.

```
Quit Without Saving (Y/N)?
```